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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/524,725	03/14/2000	Mehryar Garakani	50325-0088	8997

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EXAMINER	
SWICKHAMER, CHRISTOPHER M	
ART UNIT	**PAPER NUMBER**
2662	12

DATE MAILED: 02/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/524,725	GARAKANI, MEHRYAR	
	Examiner	Art Unit	
	Christopher M Swickhamer	2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 December 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,10-18 and 23-36* is/are rejected.

7)☒ Claim(s) *6-9 and 19-22* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This Office Action is in response to the Amendment filed 12/01/03. Claims 29-36 have been added. Claims 1-36 are pending. The Affidavit filed on 12/01/03 under 37 CFR 1.131 has been considered but is ineffective to overcome the Hsu reference. The evidence submitted is insufficient to establish a conception of the invention prior to the effective date of the Hsu reference. While conception is the mental part of the inventive act, it must be capable of proof, such as by demonstrative evidence or by a complete disclosure to another. Conception is more than a vague idea of how to solve a problem. The requisite means themselves and their interaction must also be comprehended. See *Mergenthaler v. Scudder*, 1897 C.D. 724, 81 O.G. 1417 (D.C. Cir. 1897). The *Virtual Dynamic Backbone Protocol (VDBP): Technical Specification* by Ryu et al cited to antedate the Hsu reference is not relevant to the claimed invention. The document does not credit the inventor of the instant application as being the author of the VDBP specification. Further the submitted VDBP document describes an invention separate from the invention disclosed in the instant application. Therefore the Affidavit is ineffective. Currently no claims are in condition for allowance.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an

international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-4, 10-27, and 23-36 are rejected under 35 U.S.C. 102(e) as being anticipated by Hsu (USP 6,363,319).

- Referring to claims 1, 14, 27, and 28, Hsu discloses a method, a computer program with sets of instructions, a signal carrying sequences of instructions, and a processor with memory (see claims 1, 17, and 33 of Hsu) for determining an optimal (logical) path in a managed network between a source device and a destination device at a data link layer by using Multi-protocol Label Switching Protocol (MPLS, MPLS inherently operates at layer 2, which is the data link layer, col. 2, lns. 50-col. 3, lns. 10), the method comprising the computer-implemented steps of: creating and storing a directed graph (Connected Group Space representation) of network devices based on the network topology (a topology space representation) of the network devices (Fig. 3, col. 5, lns. 13-35); identifying an optimized path in the directed graph by the cumulated cost to the destination (Connected Group Space representation, col. 5, lns. 43-55); the system inherently transforms the optimized path from the directed graph into the network topology (topology space representation); and inherently creating and storing the optimized path that was transformed into the network topology (topology space representation) as the MPLS path (data link layer path, col. 5, lns. 13-25).

- Referring to claims 2 and 15, Hsu discloses the method as recited in parent claims 1 and 14, wherein the managed network is a managed IP network. MPLS was designed to run on top of the IP layer and used to transport IP data.

- Referring to claims 3 and 16, Hsu discloses the method as recited in parent claims 1 and 14, wherein the step of creating and storing a directed graph (Connected Group Space

representation) further comprises the steps of: identifying a set of vertices (Connected Group nodes) associated with the directed graph (Connected Group Space representation); identifying directed graph unidirectional links (Connected Group links) that connect the vertices (Connected Group nodes); and creating and storing information that represents the unidirectional links (Connected Group links, Fig. 3, col. 5, lns. 13-col. 6, lns. 10).

- Referring to claims 4 and 17, Hsu discloses the method as recited in parent claims 1 and 14, wherein the step of creating and storing a directed graph (Connected Group Space representation) further comprises the steps of: identifying a set of candidate vertices (subnet) associated with the source device and the destination device; determining a set of candidate unidirectional links (network links) that link one or more network devices in the managed network; and which would inherently determine an assignment of ports of network devices (col. 5, lns. 25-35).

- Referring to claims 10 and 23, Hsu discloses the method as recited in parent claims 1 and 14, wherein the step of identifying an optimized path in the directed graph (Connected Group Space representation) further comprises the step of finding a shortest path between a (Connected Group) source node and a (Connected Group) destination node (col. 5, lns. 43-55).

- Referring to claims 11 and 24, Hsu discloses the method as recited in parent claims 10 and 23, further comprising the step of using a Dijkstra algorithm to find the shortest path between the (Connected Group) source node and the (Connected Group) destination node (col. 5, lns. 43-55).

- Referring to claims 12 and 25, Hsu discloses the method as recited in parent claims 1 and 14, wherein the step of transforming the optimized path into the network topology (topology

space representation) further comprises the steps of: identifying an ordered set of vertices (Connected Group nodes) associated with the optimized path; and identifying an ordered set of unidirectional links (Connected Group links) associated with the ordered set of vertices (Connected Group nodes, col. 5, lns. 43-55). The system inherently transforms the series of vertices and links found to have the lowest cost in the directed graph into the actual connectivity in the network domain.

- Referring to claims 13 and 26, Hsu discloses the method as recited in parent claims 12 and 25, further comprising the steps of: identifying a pair of interfaces associated with each unidirectional link (Connected Group link) in the ordered set of vertices (Connected Group nodes) associated with the optimized path; and generating an ordered set of topology space links from the pairs of interfaces associated with unidirectional (Connected Group) links (Fig. 3, col. 5, lns. 13-55). The system finds the interfaces associated with the links associated with the optimized path.

- Referring to claims 29 and 33, Hsu discloses the method of parent claims 1 and 14, further comprising the step of monitoring network devices by obtaining information about the network devices from information associated with the data linked path (the system obtains information on bandwidth and costs associated with different paths, col. 5, lns. 55-63, col. 6, lns. 10-36).

- Referring to claims 30 and 34, Hsu discloses the method of parent claims 1 and 14, further comprising the step of obtaining diagnostic information by obtaining information about the network devices from information associated with the data linked path (col. 5, lns. 55-63).

- Referring to claims 31 and 35, Hsu discloses the method of parent claims 1 and 14, wherein the data link path is a trace of a path determinable from a bridge forwarding table (the router maintains tables on cost and topology information, Fig. 2 and 3, col. 5, lns. 7-65).

- Referring to claims 32 and 36, Hsu discloses the method of parent claims 1 and 14, wherein the data link path is verifiable by comparing information related to the data link path to information from a bridge forwarding table (the router receives updates on the topology to verify and update cost, availability and bandwidth information, col. 5, lns. 43-65).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 5 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu in view of Chang (USP 2003/0123448 A1).

- Referring to claims 5 and 18, Hsu discloses the method as recited in parent claims 1 and 14, but does not expressly disclose wherein the step of creating and storing a directed graph (Connected Group Space representation) further comprises the steps of identifying all Virtual Local Area Networks (VLANs) associated with the set of candidate vertices (a subnet) associated with the source device and the destination device; and identifying all Emulated Local Area Networks (ELANs) associated with the set of candidate vertices (subnet). Nodes in MPLS inherently may be part of a subnet (see Fedyk et al, USP 6,560,654 for supporting evidence).

Chang discloses that VLANs and ELANs are used to emulate LANs on an ATM network (paragraph [0025]). VLANs and ELANs are types of subnets supported in ATM. MPLS can be used to transport ATM traffic (paragraph [0043]). The system of Hsu could be modified so that the vertices in the directed graph would be able to identify and represent any ELAN or VLAN subnets in the directed graph as vertices. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to modify the system of Hsu so that the vertices in the directed graph identified all VLANs and ELANs between the source and destination. One of ordinary skill in the art would have been motivated to do this since MPLS can be used to identify a subnet as a single node. VLANs and ELANs are two types of subnets associated with ATM, and ATM can be transported by MPLS.

Allowable Subject Matter

6. Claims 6-9 and 19-22 are objected to as being dependent upon a rejected base claim as indicated in a previous Office Action (paper no. 9)

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher M Swickhamer whose telephone number is (703) 306.4820. The examiner can normally be reached on 8:00-4:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (703) 305-4744. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CMS
February 5, 2004

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